

CLAIMS

1. A communication system comprising:
a communication network;
a resource-mediating server coupled with the network and configured to
manage information about available resources necessary for
execution of a task; and
a communication device configured for communication with the network
and for executing a task using necessary resources accessed over the
network, task execution being adapted in response to the
information about available resources.
2. The communication system of claim 1 further comprising:
an agent processor coupled with the communication network and
configured to receive from the communication device over the
communication network control code for operating the agent
processor for execution of a portion of the task.
3. The communication system of claim 1 wherein the communication
device comprises:
a resource requesting device which originates a request for resources for
communication to the resource-mediating server.
4. The communication system of claim 3 wherein the resource
requesting device includes a list of necessary resources with the request for
resources.
5. The communication system of claim 4 wherein the resource-
mediating server comprises:
a classifying device configured to classify the task according to the list of
necessary resources.

6. The communication system of claim 3 wherein the resource requesting device is configured to include a requested service quality level in the request for services.

7. The communication system of claim 3 further comprising:
an agent processor coupled with the communication network to receive from the communication device control code for operating the agent processor for execution of a portion of the task

8. The communication system of claim 7 wherein the communication device is configured to include a requested service quality level in the request for services and receive a service quality level offered by the agent processor in response to the requested service quality level, the communication device further being configured to adapt the control code according to the service quality level.

9. The communication system of claim 1 wherein the resource-mediating server comprises:

- a device which collects resource information;
- a request receiving device configured to receive a request from the communication device to use resources necessary for the communication device to execute a communication task;
- a receiving device configured to receive from the communication device information defining a preferred level of service quality for the communication task;
- a device which produces combinations of necessary resources satisfying the request to use resources and the preferred level of service quality;
- and
- a notifying device configured to provide a notification of the combinations of necessary resources to the communication device.

10. The communication system of claim 9 wherein the resource-mediating server further comprises:

a sorting device which sorts the combinations of necessary resources according to service quality levels for the resources and the preferred level of service quality.

11. A communication device configured for operation in conjunction with a communication network, remote resources accessible via the network and a resource-mediating server which manages information about available resources, the communication device comprising:

an informing device which notifies a resource-mediating server of a request to use distributed resources of the communication network before execution of a task requiring the distributed resources;

a receiving device which receives from the resource-mediating server an indication of reserved resources;

a second informing device which notifies the resource-mediating server of one of a confirmation and a cancellation of reserved resources defined by the indication of reserved resources; and

a device for executing the task using the distributed resources based on the indication of reserved resources.

12. A resource-mediating server operable in conjunction with a communication network and a communication device which may execute a task using remote resources accessed over the communication network, the resource-mediating server comprising:

a device which stores resource information;

a request receiving device which receives a request from the communication device to use necessary resources for execution of the task by the communication device;

a quality request receiving device which receives information about a preferred level of service from the communication device;

a classifying device which classifies the task according to task category;
 a device which produces, based on the classification of the task,
 combinations of necessary resources;
 a device which produces measures of service quality associated with the
 combinations of necessary resources;
 a sorting device which sorts the combinations of necessary resources based
 on the measures of service quality and the preferred level of
 service;
 a reserving device which reserves resources for use by the communication
 device executing the task;
 an informing device which notifies the communication device of the
 reserved resources;
 a reservation receiving device which receives one of a reservation
 confirmation or cancellation from the communication device.

13. A method for performing a communication task in a communication device, the method comprising:

at a communication device, requesting use of distributed resources to
 execute a task;
 requesting a preferred level of service for use of the distributed resources;
 receiving an indication of reserved resources; and
 executing the task using the resources of the distributed resources
 according to the reserved resources.

14. The method of claim 13 further comprising:
 transferring information to a reserved resource for task execution by the
 reserved resource.